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No. X.

SELF-ADJUSTING PENDULUM.

The LARGE SILVER MEDAL *and* FIVE POUNDS *were presented to Mr. T.* JUDGE, *Newend, Hampstead, for his Model of a Self-adjusting Pendulum, which has been placed in the Society's Repository.*

SPRING pendulum clocks, especially those with small arcs of vibration, such as most of the French table-clocks, are often found to be out of beat when moved from one place to another, or when placed on a surface that is not perfectly level, and, from the same cause, will often stop altogether. This circumstance operates so much against the use of them, that some clock-makers have suppressed the pendulum altogether, and substituted in its place, for table-clocks, the duplex escapement with a balance and a spring; thus abandoning a good principle for one less perfect, and more costly and difficult of execution.

Mr. Judge proposes to prevent such clocks from getting out of beat, even when placed on a considerably inclined plane, by suspending the part which carries the pendulum, the crutch, and the pallets, on the two collets which receive the axis of the escape-wheel, by making this part freely movable on the collet, and appending to it a heavy pendulum, the effect of which is to keep the parts above mentioned always vertical, notwithstanding the inclined position of the other parts of the clock.

Reference to the Engraving, Plate III.

This adjustment is effected by adding to the clock the frame *a b*, which is shewn separate in figs. 9, 10, and 11, being the side, top, and front views, and attached to the clock in fig. 12; this frame swings freely on the same projecting studs at *c c*, which receive the pivots of the escape wheel *d*, and is kept upright over the wheel by a weight *e*, at the bottom of the arm *b*. Instead of swinging the pallets *f f* in the clock plates, they are swung in this frame, and the holes *g g* in the clock plates are enlarged and lengthened as in fig. 13, to allow the pallat arbor *h* to move laterally; the pendulum *i* also hangs from this frame at *j*; *k* is the crutch, as usual. Now it is evident, that as the frame which holds the pendulum and pallats turns on the same centres with the escape wheel, if the pendulum is once adjusted it will always be so, whether the clock leans on one side or the other; and as the weight *e* is so much farther from the centre *c* than the pendulum-stud *j*, a very moderate weight will always overpower the pendulum, and keep the frame *a b* upright. But to prevent the motion of the pendulum or any other circumstance from causing the weight *e* to vibrate, a screw is fixed in the bar *m*; this projects through the hole *n n*, in the middle of the frame *a b*, and which is elongated to allow of the lateral motion; and whenever the clock has been moved or the adjustment doubted, you have only to stop the pendulum and loosen the nut *o*, which binds the frame *a b* fast, to let the weight *e* gravitate, then fasten it again by the nut *o*, and the pendulum will be in beat.